
Uncrewed Aircraft Systems (UAS)

550.1 PURPOSE AND SCOPE

The purpose of this policy is to govern the use of Uncrewed Aircraft Systems (UAS) during emergency and non-emergency use. This policy was based upon 14CFR, Part 107 (FAA Small UAS Rule), the National Fire Protection Association (NFPA) 2400, 2019 edition: Standard for Small Unmanned Aircraft Systems (sUAS) Used for Public Safety Operations, (OAR 738-080-0050(2), ORS 837, National Wildfire Coordination Group (NWCG) PMS-515, National Institute of Standards and Technology (NIST) and the UAS Operations Guide that has been adopted.

The Scappoose Fire District intends to use UAS to enhance the situational awareness on emergency scenes, damage assessment, investigations, making maps as part of planning activities or other lawful requests from a partner agency. This policy requires that all UAS operations account for preservation of privacy, civil rights and civil liberties, accountability for the PIC and data collected, but accomplished in a manner that allows for transparency to the public, the board of directors and other government agencies. This policy shall be posted on the district website.

502.1.1 DEFINITIONS

Definitions related to this policy include:

Personnel Accountability Report (PAR) - A roll call of all operations members assigned to an incident at specified times; a PAR is designed to account for each member's location and activity and to verify his/her safety.

Autonomous Flight—Set of equipment/computers, and internal navigation systems (INS) GPS navigation units which allow a UAS to navigate and fly autonomously. Autonomous flight generally means the vehicle is capable of reasoning and decision making without oversight or intervention from human controllers, a level of autonomy that is not presently contained in most UAS.

C-Band—Frequency band selected and used by a UAS system to operate an aircraft from its control station when in line-of-sight. C-Band is from 4GHz to 8GHz and is one of several bands used to control UAS.

Civil Aircraft—Aircraft other than public aircraft (public aircraft include military and other government-use aircraft). Civil aircraft include those which are privately owned such as general aviation (GA) aircraft governed by 14 CFR Part 91, and those operated for commercial purposes such as those which fall under 14 CFR Part 121 and 14 CFR Part 135 operations.

Class A Airspace—Generally, airspace from 18,000 feet MSL up to and including FL 600, including the airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous states of the United States and Alaska. Unless otherwise authorized, all persons must operate their aircraft under Instrument Flight Rules (IFR) in Class A airspace.

Class B Airspace—Generally, airspace from the surface to 10,000 feet MSL surrounding the nation’s busiest airports having very high numbers of airport operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers (some Class B airspace areas resemble upside-down wedding cakes) and is designed to contain all published instrument procedures once an aircraft enters the airspace. An ATC clearance and two-way communication is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation instructions within the airspace.

Class C Airspace—Generally, that airspace from the surface to 4,000 feet above the airport elevation surrounding those airports that have an operational control tower, are serviced by a radar approach control, and have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C area is individually tailored, the airspace usually consists of a surface area with a five nautical mile (NM) radius, a circle with a 10 NM radius that extends no lower than 1,200 feet up to 4,000 feet above the airport elevation, and an outer area that is not charted. Each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace, and thereafter maintain those communications while within the airspace.

Class D Airspace—Generally, airspace from the surface to 2,500 feet above the airport elevation surrounding those airports that have an operational control tower. The configuration of each

Class D airspace area is individually tailored and when instrument procedures are published, and the airspace will normally be designed to contain the procedures. Arrival extensions for instrument approach procedures may be within Class D or Class E airspace. Unless otherwise authorized, each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while in the airspace.

Class E Airspace—Generally, if the airspace is not Class A, Class B, Class C, or Class D, and it is controlled airspace, it is Class E airspace. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace will be configured to contain all instrument procedures. Also, in this class are federal airways, airspace beginning at either 700 or 1,200 feet AGL used to transition to/from the terminal or en route environment, en route domestic, and offshore airspace areas designated below 18,000 feet MSL. Unless designated at a lower altitude, Class E airspace begins at 14,500 MSL over the United States, including that airspace overlying the waters within 12 NMs of the coast of the 48 contiguous states and Alaska, up to, but not including 18,000 feet MSL, and the airspace above FL 600.

Class G Airspace—Airspace not designated as Class A, B, C, D or E.

Note for Airspace definitions: There are also minimum equipment requirements for aircraft to operate in each class of airspace. This in many ways can be a limiting factor to UAS operators. (FAA 2014d)

Certificate Of waiver or Authorization (COA)— COA is an authorization issued by the Air Traffic Organization to a public operator for a specific UA activity. After a complete application is submitted, FAA conducts a comprehensive operational and technical review. If necessary, provisions or limitations may be imposed as part of the approval to ensure the UA can operate safely with other airspace users.

Collision Avoidance—The sense and avoid (detect-and-avoid) system function where the UAS takes appropriate action to prevent an intruder from penetrating the collision volume. Action is expected to be initiated within a relatively short time horizon before the closest point of approach. The collision avoidance function engages when all other modes of separation fail. (See SAA; see DAA)

Communication Link—The voice or data relay of instructions or information between the UAS pilot and the ATC and other NAS users. It is generally understood that there are two possible communication links: one from the UAS operator to/from the vehicle and the other from the payload operator to/from the vehicle.

Control Station—The equipment used to maintain control, communicate with, guide, or otherwise pilot an unmanned aircraft. The control station includes the communications equipment, computers, control inceptors, and displays used to control the vehicle as well as the physical enclosure, support systems, and power sources.

Crewmember [UAS]—In addition to the crewmembers identified in 14 CFR Part 1, a UAS flight crewmember includes pilots, sensor/payload operators, and visual observers, but may include other persons as appropriate or required to ensure safe operation of the aircraft.

Data-link—Typically, a ground-to-air communications system that transmits information via digital coded pulses. However, data-link can also be air-to-air, ground-to-ground, and ground-to-space.

Fire Traffic Area Protocol (FTA) —Firefighting aircraft follow a communications protocol known as the FTA, which is a 12-mile radius from the center point of an incident. UAS are typically launched and recovered from inside the FTA. UASPs must follow this protocol before the aircraft is launched.

Lost Link—Describes the state of the aircraft when it has no communication with ground control. Once the link is lost, the operator is no longer in control of the airplane until link is regained. In the event of lost link, the UAS executes preprogrammed lost link procedures, which can be loaded prior to takeoff or during flight depending on the type of UAS. The aircraft will strictly follow the procedures preprogrammed by the operator. A few examples of lost link procedures are listed below:

- Fly to the recovery field
- Fly to a specific set of coordinates using GPS
- Take any action it was preprogrammed to take (such as flight termination).

Model Aircraft—An unmanned aircraft that is capable of sustained flight in the atmosphere; flown within visual line-of-sight of the person operating the aircraft and flown for hobby or recreational purposes.

Narrow Beam Antenna—High gain antenna with a focused narrow sector for a long distance.

Notice To Air Mission (NOTAM) —A **NOTAM** is a notice containing information essential to personnel concerned with flight operations but not known far enough in advance to be

publicized by other means. It states the abnormal status of a component of the National Airspace System (NAS) – not the normal status.

OMNI Antenna—Omnidirectional antenna that sends and receives signals equally in all directions.

Operator—Under the proposed FAA rule for small UAS, pilots of a small UAS will be considered operators.

Payload—Set of sensors and cameras carried on board a UAS.

Public Aircraft—An aircraft operated by a governmental entity (including federal, state, or local governments, and the U.S. DOD and its military branches) for certain purposes as described in 49 U.S.C. §§ 40102(a)(41) and 40125. Public aircraft status is determined on an operation-by-operation basis. See 14 CFR Part 1, § 1.1 for a complete definition of a public aircraft.

Public Aviation—Public Aircraft Operation (PAO) is limited by statute to certain government operations within U.S. airspace. Although these operations must comply with certain general operating rules (including those applicable to all aircraft in the NAS), other civil certification and safety oversight regulations do not apply. Whether or not an operation may be considered public is determined on a flight-by-flight basis, under the terms of the statute (49 U.S.C. 40102 and 49 U.S.C. 40125) and depends on factors such as aircraft ownership, operator, the purpose of the flight, and the persons on board the aircraft.

SATCOM—Satellite communications: Term used to describe controlling the aircraft in BLOS using a satellite system and equipment.

SCAPPOOSE COA—In March of 2021 the FAA issues two COA's to the Scappoose Fire District. FAA Form 7711-1 2022-WSA-10037 and 7711-1 2022-WSA-10293. These COAS's cover the entire state of Oregon and Clark County Washington. The COA's allow for flights in controlled airspace, Tactical Beyond Visual Line of Sight (TBVLOS) and over 400 feet (Up to 1,199 feet Above Ground Level).

Self-Separation—Sense and avoid system function where the UAS maneuvers within a sufficient timeframe to remain clear of other airborne traffic.

Sensor—set of equipment that can be installed on board the UAS for the purpose of information gathering.

Special Airworthiness Certificate –Experimental Category (UAS)—Airworthiness certification for a civil experimental UAS. The FAA defines the Experimental Category as follows: A special airworthiness certificate in the experimental category is issued to operate an aircraft that does not have a type certificate or does not conform to its type certificate and is in a condition for safe operation. Additionally, this certificate is issued to operate a primary category kit-built aircraft that was assembled without the supervision and quality control of the production certificate holder.

Special Government Interest (SGI) — First responders and others organizations responding to natural disasters or other emergency situations may be eligible for expedited approval through our Special Governmental Interest (**SGI**) process. Operations that may be considered include: Firefighting. Search and Rescue. Law Enforcement.

Temporary Flight Restriction (TFR) —Temporary Flight Restrictions (**TFR**) are tools used by the Federal Aviation Administration (**FAA**) to restrict aircraft operations within designated areas.

Test Range—A defined geographic area where research and development are conducted. Test ranges are also known as test sites in related documents, such as the FAA’s Screening Information Request.

Unmanned Air Systems Pilot (UASP)— The Unmanned Aircraft Systems Pilot provides data to tactical and strategic decision makers and is responsible for flying, managing, and coordinating Unmanned Aircraft Systems (UAS) missions on emergency and non-emergency incidents.

Unmanned Air Systems Manager (UASM)— The Unmanned Aircraft Systems, Manager is the conduit between an Unmanned Aircraft Systems Pilot (UASP) and an Incident Management Team (IMT) or other governing body. The UASM coordinates the missions with operations, air operations, and planning personnel and is the designated representative for the operation.

Visual Line-of-Sight—Unaided (corrective lenses and/or sunglasses exempted) visual contact between a pilot-in-command or a visual observer and a UAS sufficient to maintain safe operational control of the aircraft, know its location, and be able to scan the airspace in which it is operating to see and avoid other air traffic or objects aloft or on the ground.

Wide Antenna—Directional antenna, perhaps on a UAS ground data terminal, which sends and receives signals equally distributed in a wide sector of interest with a variety of ranges that are specific to the operation.

550.2 POLICY

It is the policy of this district that any district pilots or pilots contracted by the district adhere to this policy. All pilots shall follow all FAA rules and regulations, ensure proper exemptions have been secured when needed and all reports are compiled for public transparency. This policy will be reviewed every two years. Any mission conducted under the Scappoose Fire COA or under SGI rules, must be in accordance for the Scappoose Fire COA approval or SGI flight. This includes flights in Temporary Flight Restriction (TFR) areas.

550.3 RESPONSIBILITIES

It is the responsibility of the Pilot In Charge (PIC), to follow all FAA regulations, circulars, district policy, district operations guide, and all applicable guidelines when flying on federal and state lands. The PIC is responsible for all pre and post flight checks, accident reporting, Loss Of Signal (LOS) reporting, or any other mishap. The PIC is responsible to check for local TFR’s or other requirements of a flight that may be out of the local district. Furthermore, all data collected must be in accordance with the operations guide, Oregon Revised Statutes (ORS) and agency retention

policies. If a mission request comes from a Law Enforcement Agency, a Probable Cause Affidavit must be filed with the court having jurisdiction in accordance with ORS.

550.4 REPORTING

Every flight shall be recorded with a flight log. Specific areas of information to be collected include:

- Date
- Time
- Location
- Incident Number or Agency authorizing flight
- Permission of the property owner of where the flight is to occur (Unless this in not possible)
- Aircraft Number
- PIC and Certification Number
- Airspace (What Type)
- Weather (Visibility, Ceiling, Wind and KP Index) and weather source
- Pre and Post Flight Checks (Including Battery used)
- Go / No-Go Checklist
- Flight Type (Software Controlled, Free Flight, Combined)
- Software (Programs used for the flight operations)\
- Flight Data (What type of data was collected, was it logged, if evidence, was the evidence logged appropriately.

550.5 USE OF INFORMATION COLLECTED

Data shall only collect information using a sUAS, to the extent that such collection or use is consistent with and relevant to an authorized purpose and shall only be collected, used and stored under the following conditions:

- Criminal Cases
- Fire Investigations
- Active Fire responses
- Crash Reconstruction
- Search And Rescue (SAR)
- Authorized Mapping Missions
- Training

Information must be checked for any violations of civil liberties, civil rights and or First Amendment violations. Additionally, any information collected as part of a criminal investigation must be in accordance with OAR and ORS. Consultation with the local District Attorney is advised when in doubt of collected information. Personally Identifiable Information (PII) shall only be stored or kept in circumstance involving a legally authorized investigation. All applicable laws governing investigations shall be followed, including PII.

All data captured shall be stored on a department owned RAID hard drive that is partitioned to provide a redundant backup. All data shall be recorded by date, incident number in a folder for the specific year that the data was captured.

Any information that is captured in an investigation shall be kept on the recording device and logged into evidence (Micro SD Card).

Comply with the Privacy Act of 1974 (5 U.S.C. 552a) in applicable circumstances and prohibit the collection, use, retention, or dissemination of data in any manner that would violate the First Amendment or in any manner that would discriminate against persons based upon their ethnicity, race, gender, national origin, religion, sexual orientation, or gender identity, in violation of law

550.6 DISSEMINATING INFORMATION COLLECTED

To promote transparency and foster confidence with the public about UAS operations, all flight logs shall be available to the public for review.

All requests for data sharing must be made in writing and have the approval of the chief. In certain circumstance, the Fire District's attorney may be consulted to ensure accordance with this policy and all applicable laws.

550.7 ACCOUNTABILITY OF UAS OPERATIONS

UAS operations shall be conducted in accordance with this policy and all applicable rules governing a specific mission or location of a mission. The PIC is accountable for all actions that occur during the flight, up to including the logging and storing of any data collected.

This policy also allows for accountability to the general public in the safe, lawful use of UAS during the course of district operations or requests for flights that are legally authorized. This policy will be posted on the aviation website where the public has access.

550.8 COMPLAINTS

All complaints regarding a PIC, mission or district UAS must be made in writing to the fire district. The complaint must include a violation of ORS, Federal Aviation Regulation Violations, or district policy violation.

Any complaint that does not contain a standard, rule or law will still be reviewed, however, any decision rendered will be final.

The district shall have a 21-day review period when a complaint is filed. After the review is complete, a final decision by the Fire Chief shall be recorded and be provided to the complainant. The decision shall include any laws or policies violated, corrective action and recommendations that will be implemented to prevent a violation from occurring in the future.

550.9 SHARING DATA WITH OTHER ORIGINAZATIONS / JURISDICTIONS

Any information collected during an incident or special request from another entity shall be made available to that entity as long as that information is not subject to PII.

Information collected that may contain PII, shall not be retained for more than 180 days, unless retention of the information is determined to be necessary to an authorized mission of the retaining agency. Additionally, the information retained bust be done using a system of records covered by the Privacy Act.

Information that is part of an ongoing investigation shall not be shared or released unless it is specific to the investigation activities and the outside agency(s) requesting the data. Members of the public or media seeking to obtain information obtained with a UAS that is part of an investigation, must obtain a court order before the district will release such information and conform to all applicable laws, regulations and policies.

550.10 TRANSPARENCY OF UAS OPERATIONS

The District will make this policy available to the public. This policy will be posted on the public facing aviation website.

With the District's COA, the Fire District has the ability to operate in Class C, D, E and G airspace, Tactical Beyond Visual Line Of Sight (TBVLOS), and up to 1,199 feet Above Ground Level (AGL) in Clark County Washington and the entire State of Oregon. When feasible, the RPIC will file a NOTAM under the prescriptions outlined in the COA.

The Fire District will report monthly to the FAA, all flights flown under the COA (As required and outlined in the COA Document) and will provide a year-end summary to the Oregon Department of Aviation and post on our website. This report will include categories of missions flown, mutual aid and complaints about the program.

550.11 REVIEW OF POLICY

This policy shall be reviewed every three years. This review is necessary to update any new laws, regulations the collection, use, retention, and dissemination of information pertaining to UAS. This is necessary to ensure that privacy, civil rights, and civil liberties are protected. With speed at which the industry is evolving, it is necessary to make sure the district is not missing anything.